



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,615	09/18/2003	Anatoly Z. Rosenflanz	58354US002	9899

32692 7590 01/09/2006

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT PAPER NUMBER

1755

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/666,615	Applicant(s) ROSENFLANZ, ANATOLY Z.	
	Examiner Michael A. Marcheschi	Art Unit 1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/1/04
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/15/04, 8/12/04, 8/16/04, 10/29/04</u> | 6) <input type="checkbox"/> Other: _____ |

10/8/04, 1/20/05, 2/19/05,
3/8/05, 3/17/05
& 7/6/05

The preliminary amendment filed 6/1/04 is objected to because:

(1) applicant makes a statement to delete the page numbering located on the left side of pages 1-41, yet this amendment does not follow the amendment rules (i.e. substitute pages required).

(2) applicant makes a statement to delete the page numbering located on the right side of page 42, yet no such numbering exists.

(3) although the amendment refers to pages and line numbers for the replacement paragraphs, some of the page and line numbers referred to in the preliminary amendment do not correspond to those defined in the current specification.

For example on page 2 of the preliminary amendment, applicant sets forth “replace the paragraph that starts on line 30 with the word “The” and ends on page 2, line 30 with the word “article”, however, the paragraph to be replaced starts on line 30 with the word “In” and ends on page 2, line 31 with the word “article”, however,

In addition, on page 5 of the preliminary amendment, applicant sets forth “replace the paragraph that starts on line 3 with the word “In” and ends on page line 31 with the word “article”, however, this statement does not define the ending page.

The disclosure is objected to because of the following informalities:

On each page of the specification, page numbers appear on the right side of the page.

In addition, the specification is objected to as to the other informalities defined in the preliminary amendment dated 6/1/04, which is objected to (see above).

Art Unit: 1755

Finally, throughout the specification, applicants refer to serial numbers, however, the status of the applications must be defined (i.e. if it is a patent, the patent number must be provided).

Appropriate correction is required.

A substitute specification excluding the claims is required pursuant to 37 CFR 1.125(a) because the numerous amendments to be made in the specification could lead to confusion and mistake during the issue and printing processes. Accordingly, the entire specification is required to be rewritten.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

Art Unit: 1755

Claims 30-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 30 and 50 are indefinite as to the limitation “to convert at least a portion of the glass to crystalline ceramic and provide glass-ceramic and the abrasive particles” because the examiner is unclear as how the abrasive particles differ from the glass ceramic. It is apparent that the glass-ceramic is the abrasive particles thus does the limitation “abrasive particles”, as defined in the above limitation, mean that distinct abrasive particles, in addition to the glass-ceramic, are present (i.e. abrasive particles that are not the glass-ceramic of the claims)? If so, how are they different from the glass-ceramic? It is suggested that the phrase “the abrasive particles” be canceled from the above limitation.

Claim 55 is indefinite because the phrase “the **ceramic** abrasive particles” lacks antecedent basis because this was never defined before. The claim never defines that the abrasive particles are only ceramic in nature.

The other claims are indefinite because they depend on indefinite claims.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1755

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-55 are rejected under 35 U.S.C. 103(a) as obvious over Rosenflanz et al.

2003/0126804 (the U.S. patent is related to WO reference (X reference) cited on search report filed 1/20/05)

The reference teaches in sections [0011], [0025-0041], [0073], [0124]-[0135], examples 14-15 and the claims, a method of making a glass-ceramic comprising heat treating a base material (glass (particles) or a ceramic comprising glass) to convert at least a portion thereof to a ceramic thus providing a glass-ceramic. Abrasive particles can also be formed by crushing the glass-ceramic to form abrasive particles and grading the abrasive particles to form a plurality of particles having a specified nominal grade. The base material comprises aluminum oxide (claimed amount), zirconium oxide (claimed amount) and a rare earth oxide (REO). Hafnium oxide can also be present, as well as, other components, such as those listed in the last 3 lines of section [0055] of the reference. Examples 14 and 15 show compositions that comprise aluminum oxide (at least 35%), zirconium oxide, a rare earth oxide (REO) and either tantalum oxide or niobium oxide. The abrasive particle can be made into the claimed abrasive products and the particles can have the claimed hardness. Finally, section [0027] states that unless specified, the oxides can be amorphous, crystalline or a mixture thereof.

The following rejection is based on 2 parts. (1) a first rejection using examples 14 and 15 as the primary teaching and (2) an alternative rejection using the disclosure of the broad

Art Unit: 1755

composition (i.e. broad composition as defined in section [0029] and the independent claims) as the primary teaching.

In the first rejection, the examples show that a base material comprising the claimed components is melt formed. Although the glass-ceramic aspect is not literally defined for the examples, it is the examiners position that this aspect is an obvious limitation and one skilled in the art would have appreciated this because the reference, as a whole, is directed to forming a glass ceramic by melt forming a base material. With respect to the functional limitation defined in the last 4 lines of the independent claims 1 and 23 and the functional limitations defined in claims 2-5 and 24-25, although not literally defined by the reference, the reference uses niobium oxide or tantalum oxide in an amount of 5 weight percent (amount defined by instant claim 9). In view of this, it is the examiners position that since the same amount of these components is used, when compared to the claimed amount, the reference composition will result in a glass-ceramic material that is expected to yield the claimed functional characteristics absent evidence to the contrary. This is apparent because the same components used in the same amounts is expected to provide the same result. In view of the above, the limitations of claims 1-5, 7, 9, 10, 12, 13 and 23-26 are met.

With respect to claims 6, 8 and 11 (amounts for aluminum oxide and zirconium oxide), although the examples defined above do not contain the claimed amounts of aluminum oxide and zirconium oxide, the reference as a whole, discloses broad ranges for these components, thus the variation in the amounts would have been appreciated and well within the scope of the skilled artisan.

Art Unit: 1755

With respect to the amount of REO in claim 11, although the examples defined above do not contain the claimed amount of REO, the reference as a whole, teaches variations in the amount of this component and as evidenced by the additional examples and the lack of any amount in claim 1 (REO is the other metal oxide thus the lack of any amount suggests that the REO can make up the balance of the composition). In view of this, the variation in the amount would have been appreciated and well within the scope of the skilled artisan.

With respect to the additional steps and the characteristics as defined in claims 14-22 and 27-29, the reference discloses that a glass-ceramic can be processed in the claimed manner to provide abrasive particles (to be used to make abrasive articles) that have the claimed characteristics.

As defined above, the abrasive limitation is obvious. With the abrasive limitation is coupled with the composition of the base material (base material limitations being obvious for the above reasons which are incorporated herein by reference), the limitations of claims 30-55 are met.

In the alternative rejection, the board teaching of the reference teaches a method of making a glass-ceramic or abrasive that comprises heat treating a base material (aluminum oxide, zirconium oxide, REO, etc.) and further processing to make the final product. Although tantalum oxide or niobium oxide are not literally disclosed for use in the broad composition, it is the examiners position that one skilled in the art would have found the use of one of these oxides obvious in the broad composition because the examples disclose that compositions based on aluminum oxide, zirconium oxide and REO are also known to contain these components. In

Art Unit: 1755

view of this, the skilled artisan would have appreciated the addition of said components to the broad composition (said addition is well within the scope of the skilled artisan from reading the reference as a whole). With respect to the amount, it is the examiners position that one skilled in the art would have appreciated that the amount of addition for these additional components could be consistent with or similar to the examples amounts for these components. In view of this, it is the examiners position that this would results in the claimed functional limitation.

Claims 1-5, 7, 9, 12, 13, 14 and 19-26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over MacDowell et al. (3,635,739).

The reference teaches in column 1, lines 48-55, column 3 lines 30-51 and the claims, a method of making a glass-ceramic comprising heat treating (melting) a base material (batch) to convert it to glass-ceramic. The base material comprises aluminum oxide (claimed amount), zirconium oxide (claimed amount) and tantalum oxide. A rare earth oxide (REO) can also be added.

The claimed invention is anticipated by the reference because the reference teaches a method of making a glass-ceramic which comprises comprising heat treating (melting) a base material (batch) to convert it to glass-ceramic, wherein the base material comprises all of the claimed components. With respect to the functional limitation defined in the last 4 lines of the independent claims 1 and 23 and the functional limitations defined in claims 2-5 and 24-25, although not literally defined by the reference, the reference uses tantalum oxide in an amount of 5 weight percent (amount defined by instant claim 9). In view of this, it is the examiners position that since the same amount of this component is used, when compared to the claimed

Art Unit: 1755

amount, the reference composition inherently will result in a glass-ceramic material that inherently yields the claimed functional characteristics absent evidence to the contrary. With respect to the characteristics as defined in claims 14 and 19-22, the reference discloses a glass-ceramic comprising all of the claimed components (in the claimed amounts) and it is the examiners position that the claimed characteristics are inherent because they are a function of the composition, which is the same. In the alternative, no patentable distinction is seen to exist between the reference and the claimed invention absent evidence to the contrary.

In view of the teachings as set forth above, it is the examiners position that the references reasonably teach or suggest the limitations of the rejected claims.

A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968). In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

A generic disclosure renders a claimed species prima facie obvious. *Ex parte George* 21 USPQ 2d 1057, 1060 (BPAI 1991); *In re Woodruff* 16 USPQ 2d 1934; *Merk & Co. v. Biocraft Lab. Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1983); *In re Susi* 169 USPQ 423 (CCPA 1971).

Art Unit: 1755

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

Evidence of unexpected results must be clear and convincing. *In re Lohr* 137 USPQ 548. Evidence of unexpected results must be commensurate in scope with the subject matter claimed. *In re Linder* 173 USPQ 356. To establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside (i.e. as well as the upper and lower limits) the claimed range to show the criticality of the claimed range. *In re Hill* 284 F.2d 955, 128 USPO 197 (CCPA 1960).

The examiner acknowledges the extremely lengthy 1449 cited and the reference thereon have been reviewed by the examiner and are considered to be art of interest since they are cumulative to or less than the art relied upon in the above rejections.

Any foreign language documents submitted by applicant has been considered to the extent of the short explanation of significance, English abstract or English equivalent, if appropriate. Document C37 listed on the 1449 filed 6/15/04 has not been considered because applicants fails to submit a copy of this document, in its entirety. Applicants also fail to define the relevant passages from this book.

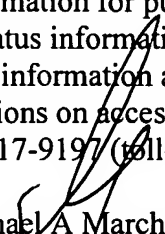
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300

Art Unit: 1755

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MM
1/06


Michael A Marcheschi
Primary Examiner
Art Unit 1755